### REVISED VERSION

# (19) World Intellectual Property Organization International Bureau





(43) International Publication Date 24 March 2005 (24.03.2005)

**PCT** 

## (10) International Publication Number WO 2005/025535 A3

(51) International Patent Classification7: A61K 9/16, 9/00

(21) International Application Number:

PCT/GB2004/003938

(22) International Filing Date:

15 September 2004 (15.09.2004)

(25) Filing Language:

**English** 

(26) Publication Language:

English

(30) Priority Data:

0321608.2 0409133.6 15 September 2003 (15.09.2003) GB 23 April 2004 (23.04.2004) GB

(71) Applicant (for all designated States except US): VEC-TURA LIMITED [GB/GB]; 1 Prospect West, Chippenham, Wiltshire SN14 6FH (GB).

- (72) Inventors; and
- (75) Inventors/Applicants (for US only): MORTON, David

[GB/GB]; 1 Prospect West, Chippenham, Wiltshire SN14 6FH (GB). KAMLAG, Yorick [NL/GB]; 1 Prospect West, Chippenham, Wiltshire SN14 6FH (GB).

- (74) Agents: GILL, Sian et al.; Venner Shipley LLP, 20 Little Britain, London EC1A 7DH (GB).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),

[Continued on next page]

(54) Title: METHODS FOR PREPARING PHARMACEUTICAL COMPOSITIONS

0.2

0.1

0.4 0.6 0.8 1

### 

Comparison between secondary and non-secondary

particle size (µm)

8 10

20

(57) Abstract: Pharmaceutical Compositions The present invention relates to improvements in dry powder formulations comprising a pharmaceutically active agent for administration by inhalation, and in particular to methods of preparing dry powder compositions with improved properties. In particular, spray drying processes are adapted and adjusted to obtain active particles with higher fine particle fractions and fine particle doses.



European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report:
  20 October 2005

  Date of publication of the revised international search
  report:
  24 November 2005
- (15) Information about Correction: see PCT Gazette No. 47/2005 of 24 November 2005, Section II

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.